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CS45–42
Plywood; Douglas Fir

U. S. DEPARTMENT OF COMMERCE
JESSE H. JONES, Secretary

NATIONAL BUREAU OF STANDARDS
LYMAN J. BRIGGS, Director

DOUGLAS FIR PLYWOOD

(FIFTH EDITION)

COMMERCIAL STANDARD CS45–42

(Supersedes CS45–40)

Effective Date for New Production From November 16, 1942

A RECORDED VOLUNTARY STANDARD OF THE TRADE

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1943

For sale by the Superintendent of Documents, Government Printing Office, Washington, D. C. - Price 10 cents

PROMULGATION

of

COMMERCIAL STANDARD CS45–42

for

DOUGLAS FIR PLYWOOD

(Fifth Edition)

On August 17, 1932, manufacturers, distributors, and users of Douglas fir plywood approved the adoption of standard grading rules for the guidance of the Douglas fir plywood industry. These grading rules were accepted by the trade and promulgated as Douglas Fir Plywood, Commercial Standard CS45–33. The standard was revised in 1936, 1938, and 1940.

A recommended revision submitted by the Douglas Fir Plywood Association, and endorsed by the standing committee, was circulated on July 2, 1942, to the trade for written acceptance. The trade has since accepted and approved for promulgation by the United States Department of Commerce, through the National Bureau of Standards, the revised standard as shown herein.

The standard is effective for new production from November 16, 1942.

Promulgation recommended.

I. J. Fairchild,
Chief, Division of Trade Standards.

Promulgated.

Lyman J. Briggs,
Director, National Bureau of Standards.

Promulgation approved.

Jesse H. Jones,
Secretary of Commerce.

DOUGLAS FIR PLYWOOD

(Fifth Edition)

COMMERCIAL STANDARD CS45-42

PURPOSE

1. Because of the extended application of Douglas fir plywood to a large number of new uses, the following standard grading rules are offered as a universal basis of understanding in the industry. General adoption and use of this standard will facilitate procurement of the proper grade of material and the proper type as to moisture resistance for its varied uses and provide a better understanding between buyer and seller. Architects, engineers, contractors, industrial users, and home owners will thus be able to specify their needs from nationally accepted grading standards.

SCOPE

2. These rules cover six grades of moisture-resistant-type and seven grades of exterior-type Douglas fir plywood—a laminated board for paneling, sheathing, concrete forms, cabinet work, and many other structural and industrial uses. In addition, there are included grade specifications for door panels, tests, standard sizes, size tolerances, reinspection rules, and nomenclature and definitions.

DEFINITION

3. Douglas fir plywood is a built-up board of laminated veneers in which the grain of each piece is at right angles to the one adjacent to it. The kiln-dried veneer is united under high pressure with a bonding agent, making the joints as strong as or stronger than the wood itself. The alternating direction of the grain with each contiguous layer of wood equalizes the strains and in this way minimizes shrinkage and warping of the product and prevents splitting.

GENERAL REQUIREMENTS

4. All Douglas fir plywood sold as of commercial standard quality shall meet the following general requirements.

5. *Workmanship.*—Unless otherwise specified, plywood shall be smoothly sanded on two sides. When specified rough or unsanded plywood may have paper tape on either face or back, or both, except for the exterior type of industrial grade. It shall be well manufactured and free from blisters, laps, and defects, except as permitted in the specific rules for the various grades.

6. *Bonding.*—The entire area of each contacting surface of the plywood shall be bonded in an approved manner with material best adapted to each use classification.

7. *Loading or packing.*—It shall be securely loaded or packed to ensure delivery in a clean and serviceable condition.

DETAIL REQUIREMENTS

8. Douglas fir plywood is made in two types (1) moisture-resistant (M. Res.) and (2) exterior (Ext.). It shall be graded, according to both sides of the piece, into the various grades as hereinafter defined. The grade descriptions set forth the minimum requirements, and therefore the majority of panels in any shipment will exceed the specification given.

MOISTURE-RESISTANT TYPE

9. This type represents the majority of production and consists of plywood with a high degree of moisture resistance, where its application requires that it shall retain its original form and practically all its strength when occasionally subjected to a thorough wetting and subsequent normal drying, a plywood suitable for construction where subjected to occasional deposits of moisture by condensation through walls or leakage or from other sources. Veneers 1/12-inch or more shall be used in the construction of moisture-resistant-type panels 1/4-inch and upward in thickness. The veneer thickness shall be measured before the panel is sanded. This type shall meet the test requirements set forth in par. 26 and 27. This type is available in the following grades:

10. *Sound 2 Sides (S02S).*—Each face shall be of one or more pieces of firm, smoothly cut veneer. When of more than one piece, it shall be well joined and reasonably matched for grain and color at the joints. It shall be free from knots, splits, checks, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims, and neatly made patches shall be admitted. This grade shall present a smooth surface suitable for painting.

11. *Sound 1 Side (S01S).*—The face shall be of one or more pieces of firm smoothly cut veneer. When of more than one piece, it shall be well joined and reasonably matched for grain and color at the joints. It shall be free from knots, splits, checks, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims, and neatly made patches shall be admitted. The face shall present a smooth surface suitable for painting. The back shall present a solid surface with all knots in excess of 1 inch patched and with the following permitted: Not more than six knotholes or borer holes 5/8 of an inch or less in greater dimension, splits 1/8 of an inch or less in width and pitch pockets not in excess of 1 inch wide or 3 inches long or that do not penetrate through veneer to glue line. There may be any number of patches and plugs in the back.

12. *Wallboard (WB).*—This is a 3-ply board of 1/4-inch or 3/8-inch sanded, or 5-ply 1/2-inch sanded thickness, made only in standard wallboard sizes, the face of which shall be of one or more pieces of firm, smoothly cut veneer. When of more than one piece it shall be well joined and reasonably matched for grain and color at the joints. It

shall be free from knots, splits, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims, and neatly made patches shall be admitted. The face on this grade shall present a smooth surface suitable for painting. The back shall contain knotholes or pitch pockets, splits, and other defects in number and size that will not seriously affect the strength or serviceability of the panel and which cannot reasonably and economically be repaired to make a sound face. All wallboard panels shall be so designated by grade marking each panel.

13. *Sheathing (SH).*—This is an unsanded plywood made only in the following sizes: Thicknesses 5/16 inch and 3/8 inch 3-ply; 1/2 inch and 5/8 inch 3- or 5-ply; widths 36 and 48 inches; length 96 inches. The face shall present a solid surface, except that the following will be permitted: (a) Not more than 10 knotholes none of which shall exceed 1½ inches with not more than 5 exceeding ¾ inch in greatest dimension; (b) no group of knotholes within any 12-inch-diameter circle shall have an aggregate greatest dimension more than 3 inches; (c) no splits wider than 1/8 inch; or any type of borer holes longer than 1 inch; or open pitch pockets more than 1 inch wide. There may be any number of patches and plugs in the face, but the face may not be of such quality that, if sanded, it will pass for a wallboard face. No belt sanding is permissible. The back shall be at least equal in quality to a wallboard-grade back. No tape shall be permitted in the glue line. All sheathing panels shall be scored or marked for nailing to conform to standard spacing of lumber studding.

14. *Industrial (unsanded).*—Faces of panels shall be free from knotholes, and any type of borer holes more than 5/8 of an inch in greatest dimension and open pitch pockets more than 1 inch wide. Tight knots, checks, plugs, patches, and shims shall be admitted in either face. Core and crossbands shall be of firm stock but shall contain no knotholes greater than 1¼ inches in any dimension.

15. *Concrete-form plywood.*—Concrete-form plywood shall be built up of three or five thicknesses of veneer, of which the two outside plies are at least 1/8 inch thick before sanding, except for plywood ¼ inch in thickness. An occasional knothole is permissible in the center or core of 5-ply panels only, but no knotholes are permitted in cross banding. Appearance of faces shall be similar to that of "Sound 2 Sides" grade (par. 10). The bonding agent used shall be especially prepared for this purpose and be very highly water-resistant. All concrete-form plywood shall be so designated by grade marking each panel on the face. Concrete-form plywood shall be edge-sealed and have the faces mill-oiled, unless the order specifically states not to oil.

DOOR PANELS

(Moisture-Resistant Type)

16. *Number 1 door panel (No. 1 D. P.).*—Each face shall be of a single piece of smoothly cut veneer of 100-percent heartwood, free from knots, splits, checks, pitch pockets, and other open defects. The faces shall be a yellow or pinkish color, without stain. Shims that occur only at the ends of panels and inconspicuous well-matched small patches not to exceed 5/8 inch wide by 2½ inches long shall be admitted.

17. *Number 2 door panel (No. 2 D. P.).*—Each face shall be of a

single piece of veneer that is free of knots and other open defects, but may admit medium stain and discoloration. Patches not exceeding ⅝ by 2½ inches and shims of any size, when reasonably selected for color and grain, are admissible.

EXTERIOR TYPE

18. This type represents the ultimate in moisture resistance, a plywood that will retain its original form and strength when repeatedly wet and dried and otherwise subjected to the elements, and is suitable for permanent exterior use. It shall be free from both core gaps and core voids that impair the strength or serviceability of the panel. Only a resin-impregnated tape shall be permitted in the glue line. No veneer thicker than 5/16 inch shall be used. All exterior panels shall be so designated by a distinctive symbol "Ext." branded or stamped on the edge of each panel. Plywood of this type shall meet the test requirements set forth in par. 26 and 28 or 29. This type is available in the following grades.

19. *Good 2 Sides Exterior* (*G2S-Ext.*).—Each face shall be of a single piece of smoothly cut veneer of 100-percent heartwood, free from knots, splits, checks, pitch pockets, and other open defects. The faces shall be a yellow or pinkish color, without stain. Shims that occur only at the ends of panels and inconspicuous well-matched small patches not to exceed ⅜ inch wide by 2½ inches long shall be admitted. This grade is recommended for uses where a light stain or natural finish is desired.

20. *Good 1 Side Exterior* (*G1S-Ext.*).—The face shall be equal to that described under "Good 2 Sides Exterior" grade (par. 19). The back shall be equal to the "Sound 2 Sides Exterior" grade (par. 21).

21. *Sound 2 Sides Exterior* (*SO2S-Ext.*).—Each face shall be of one or more pieces of firm, smoothly cut veneer. When of more than one piece, it shall be well joined and reasonably matched for grain and color at the joints. It shall be free from knots, splits, checks, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims, and neatly made patches shall be admitted. This grade shall present a smooth surface suitable for painting.

22. *Sound 1 Side Exterior* (*SO1S-Ext.*).—The face shall be of one or more pieces of firm, smoothly cut veneer. When of more than one piece, it shall be well joined and reasonably matched for grain and color at the joints. It shall be free from knots, splits, pitch pockets, and other open defects. Streaks, discolorations, sapwood, shims, and neatly made patches shall be admitted. The face on this grade shall present a smooth surface suitable for painting. The back shall contain knotholes not larger than 1 inch or pitch pockets, splits not wider than 3/16 inch, and other defects in number and size that will not impair the serviceability of the panel and that cannot be reasonably and economically repaired to make a sound face.

23. *Sheathing Exterior* (*SH.-Ext.*).—An unsanded panel, the face of which shall present a solid surface, except that the following will be permitted: (a) not more than six knotholes ⅜ inch or less in greatest dimension, (b) splits 1/16 inch or less in width, and (c) one or two strips of paper tape. There may be any number of patches and plugs in the face, but the face may not be of such quality that, if sanded, it will pass for "Sound 1 Side Exterior" grade. No belt sanding is permis

sible. The back shall be the same as the back described under "Sound 1 Side Exterior" grade (par. 22). Exterior type sheathing is made in 5/16-, 3/8-, 1/2-, and 5/8-inch thicknesses and in one standard panel size 48 inches by 96 inches.

24. *Industrial Exterior.*—Shall have two solid faces made of one or more pieces. All open defects shall be repaired, except small pitch pockets and tight splits which are 1/16 inch or under in width. All knotholes in the face veneer shall be patched. This is an unsanded grade, except that panels shall be lightly "touch" sanded on both sides to remove dry tape, surplus glue, etc., but the tolerance of 1/32 inch, as allowed for unsanded panels, shall apply.

25. *Concrete-form Exterior.*—Shall be the same as "Sound 2 Sides Exterior" (par. 21), except that faces shall be 1/8 inch thick before sanding. It is made only in 5/8- and 3/4-inch thicknesses. All concrete-form plywood shall be so designated by grade marking each panel on the face. Concrete-form plywood shall be edge-sealed, and have the faces mill-oiled unless the order specifically states not to oil.

TESTS

26. *Sampling.*—Samples for testing shall be taken from 1 percent of the panels in any shipment, but not less than 5 and not more than 10 panels shall be selected. A test specimen shall be cut from each end, approximately at midwidth of the panel, and from each edge, approximately at midlength of the panel, and a fifth sample shall be cut from somewhere near the middle or center of the panel.

27. *Test for Moisture-Resistant Type.*—Five samples 6 by 6 inches shall be taken from each test panel. They shall be submerged in

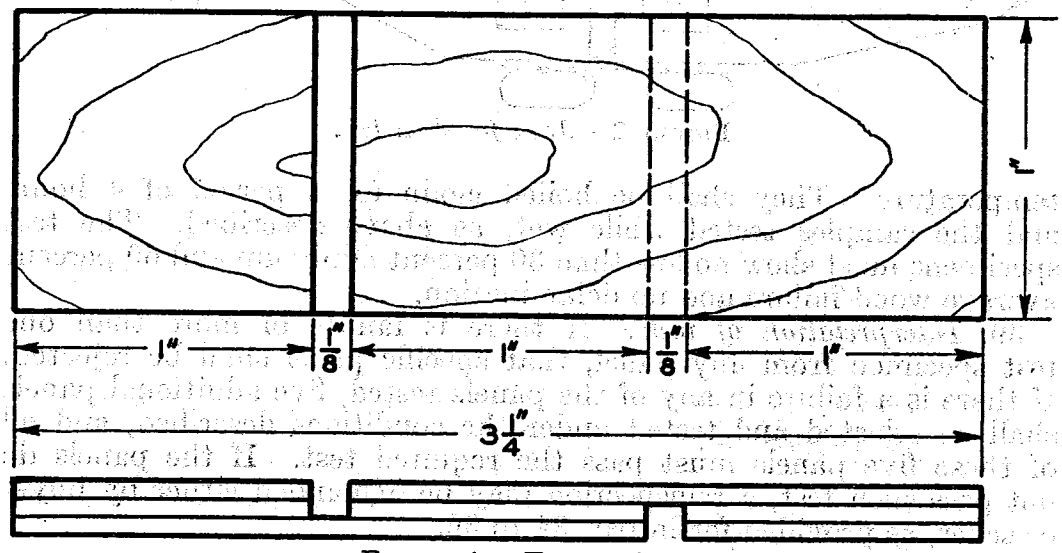

FIGURE 1.—*Test specimen.*

water at room temperature for a period of 4 hours, followed by drying at a temperature not to exceed 100° F for a period of 20 hours. This cycle shall be repeated a second time, after which the samples must show not more than 2 inches of delamination along the edge.

28. *Test for Exterior Type.*—Five samples shall be cut, as shown in figure 1, from each test piece. They shall be submerged in water

at room temperature for a period of 48 hours and dried for 8 hours at a temperature of 145° F (±5° F) and then followed by 2 cycles of soaking for 16 hours and drying for 8 hours under the conditions described above. The samples shall again be soaked for a period of 16 hours and tested while wet in a shear-testing machine, as illustrated in figure 2, by placing them in the jaws of the device, to which a load shall be applied at the rate of 600 to 1,000 lb per minute until failure. The test specimens must show no less than 30 percent minimum and 60 percent average wood failure and no delamination. If the number of plies exceeds 3, the cuts shall be made so as to test any two of the joints, but the additional plies need not be stripped except as demanded by the limitations of the width of the retaining jaws on the testing machines. When desired, special jaws may be constructed to accommodate the thicker plywood. If number of plies exceeds 3, the choice of joints to be tested shall be left to the discretion of the inspector, but at least one-half the tests shall include the innermost joints.

29. *Alternate Test for Exterior Type.*—An alternate test applicable at the manufacturer's option to the one mentioned above consists in taking the samples as described above and boiling them in water for 4 hours, followed by a drying of 20 hours at the above-mentioned

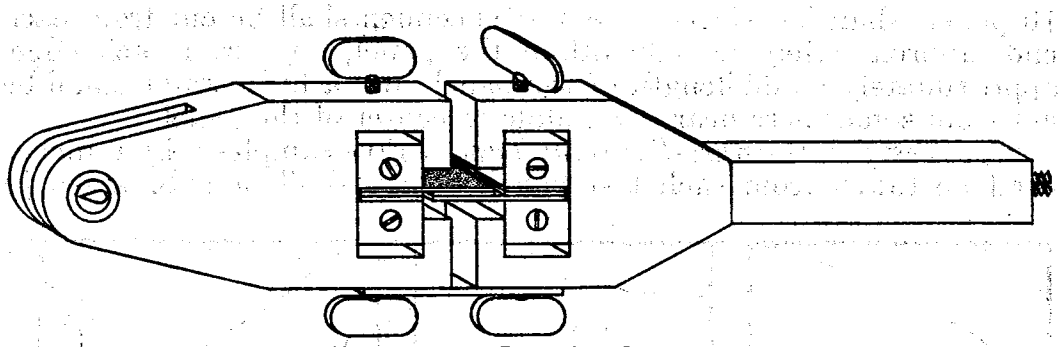

FIGURE 2.—*Jaws for shear test.*

temperature. They shall be boiled again for a period of 4 hours and the samples tested while wet, as above described. The test specimens must show no less than 30 percent minimum and 60 percent average wood failure and no delamination.

30. *Interpretation of tests.*—If there is failure of more than one test specimen from any panel, that specific panel shall be rejected. If there is a failure in any of the panels tested, five additional panels shall be selected and tested under the conditions described, and all of these five panels must pass the required test. If the panels do not pass such test, a reinspection may be demanded either by buyer or seller, as provided for in par. 34 to 36.

STANDARD SIZES

31. Douglas fir plywood is made in the following standard sizes.

TABLE 1.—*Standard Douglas fir plywood sizes*

Item	Width	Length	Thickness
MOISTURE-RESISTANT TYPE			
	Inches	*Inches*	*Inches (after sanding)*
Standard panels (SO2S) (SO1S).	24 30 36 48	60 72 84 96	1/8 (3 ply). 3/16 (3 ply). 1/4 (3 ply). 3/8 (3 ply). 1/2 (5 ply). 5/8 (5 ply). 3/4 (5 ply).
Wallboard.	48	60 72 84 96	1/4 (3 ply, sanded 2 sides). 3/8 (3 ply, sanded 2 sides). 1/2 (5 ply, sanded 2 sides).
Sheathing.	36 48	96	5/16 (3 ply, unsanded). 3/8 (3 ply, unsanded). 1/2 (3 or 5 ply, unsanded). 5/8 (3 or 5 ply, unsanded).
Automobile and industrial.	As ordered up to 48.	As ordered up to 96.	1/4 (3 ply, unsanded). 5/16 (3 ply, unsanded). 3/8 (3 ply, unsanded). 1/2 (5 ply, unsanded). 9/16 (5 ply, unsanded). 5/8 (5 ply, unsanded). 11/16 (5 ply, unsanded). 3/4 (5 ply, unsanded). 7/8 (5 ply, unsanded). 7/8 (7 ply, unsanded).
Concrete-form panels.	36 48	60 72 84 96	1/4 (3 ply, sanded 2 sides). 1/2 (5 ply, sanded 2 sides). 9/16 (5 ply, sanded 2 sides). 5/8 (5 ply, sanded 2 sides). 3/4 (5 ply, sanded 2 sides).
EXTERIOR TYPE[1]			
Standard panels (G2S-Ext.) (G1S-Ext.) (SO2S-Ext.) (SO1S-Ext.).	12 26 14 28 16 30 18 36 20 42 22 48 24	48 60 72 84 96	3/16 (3 ply) 3/4 (5 ply). 1/4 (3 ply) 13/16 (5 ply). 5/16 (3 ply) 7/8 (7 ply). 3/8 (3 ply) 15/16 (7 ply). 7/16 (5 ply) 1 (7 ply). 1/2 (5 ply) 1 1/16 (7 ply). 9/16 (5 ply) 1 1/8 (7 ply). 5/8 (5 ply) 1 3/16 (7 ply). 11/16 (5 ply).
Sheathing, exterior.	48	96	5/16 (3 ply, unsanded). 3/8 (3 ply, unsanded). 1/2 (3 ply, unsanded). 5/8 (3 ply, unsanded).
Industrial, exterior.	As ordered.	As ordered.	1/4 (3 ply, unsanded). 5/16 (3 ply, unsanded). 3/8 (3 ply, unsanded). 7/16 (3 ply, unsanded). 1/2 (5 ply, unsanded). 9/16 (5 ply, unsanded). 5/8 (5 ply, unsanded). 11/16 (5 ply, unsanded). 3/4 (5 ply, unsanded). 7/8 (5 ply, unsanded).
Concrete-form panels, exterior.	Same as standard panels.	Same as standard panels.	5/8 (3 ply, sanded 2 sides). 3/4 (5 ply, sanded 2 sides).

[1] Number of plies listed under thickness is minimum.

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SIZE TOLERANCES

32. A tolerance of 1/64 (0.0156) inch over or under the specified thickness shall be allowed on sanded panels and a tolerance of 1/32 (0.0312) inch on unsanded panels.

33. A tolerance of 1/32 (0.0312) inch over or under the specified length and/or width shall be allowed, but all the panels shall be square within 1/8 (0.1250) inch.

INSPECTION

34. All plywood guaranteed to conform to the commercial-standard grading rules is sold subject to inspection in the white only, except concrete-form materials, which may have a priming of oil or other preparation before shipment. All complaints regarding the quality of any shipment must be made within 15 days from receipt thereof.

35. If the grade of any plywood shipment is in dispute and a reinspection is demanded, the cost of such reinspection shall be borne by the seller and the shipment settled for on the basis of the reinspection report if the shipment is more than 5 percent below grade.

36. If reinspection establishes the shipment to be 5 percent or less below grade, the buyer pays the cost of reinspection and pays for the shipment as invoiced.

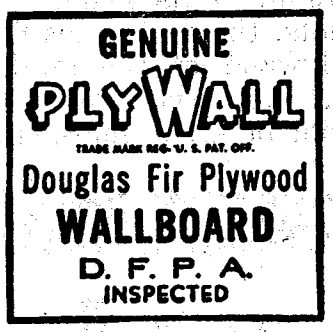
GRADE MARKING AND CERTIFICATION

37. In order to assure the purchaser that he is getting Douglas fir plywood of the grade specified, producers may individually or in concert with their trade association or inspection bureau, issue certificates with each shipment, or grade mark each panel as conforming to the standard.

38. The following sets forth the grade marking and certification rules adopted by the Douglas Fir Plywood Association to preserve the high standards of quality herein recorded and to ensure distributors and ultimate consumers that they will receive the proper kind of plywood for their specific needs. All standard-size panels are stamped or branded with the following symbols:

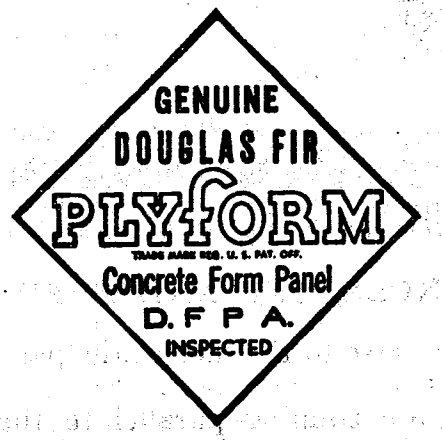
(a) *Standard Panels* of Sound 2 Sides and Sound 1 Side grades are stamped or branded on one edge.

(*b*) *Wallboard* is stamped on the back.



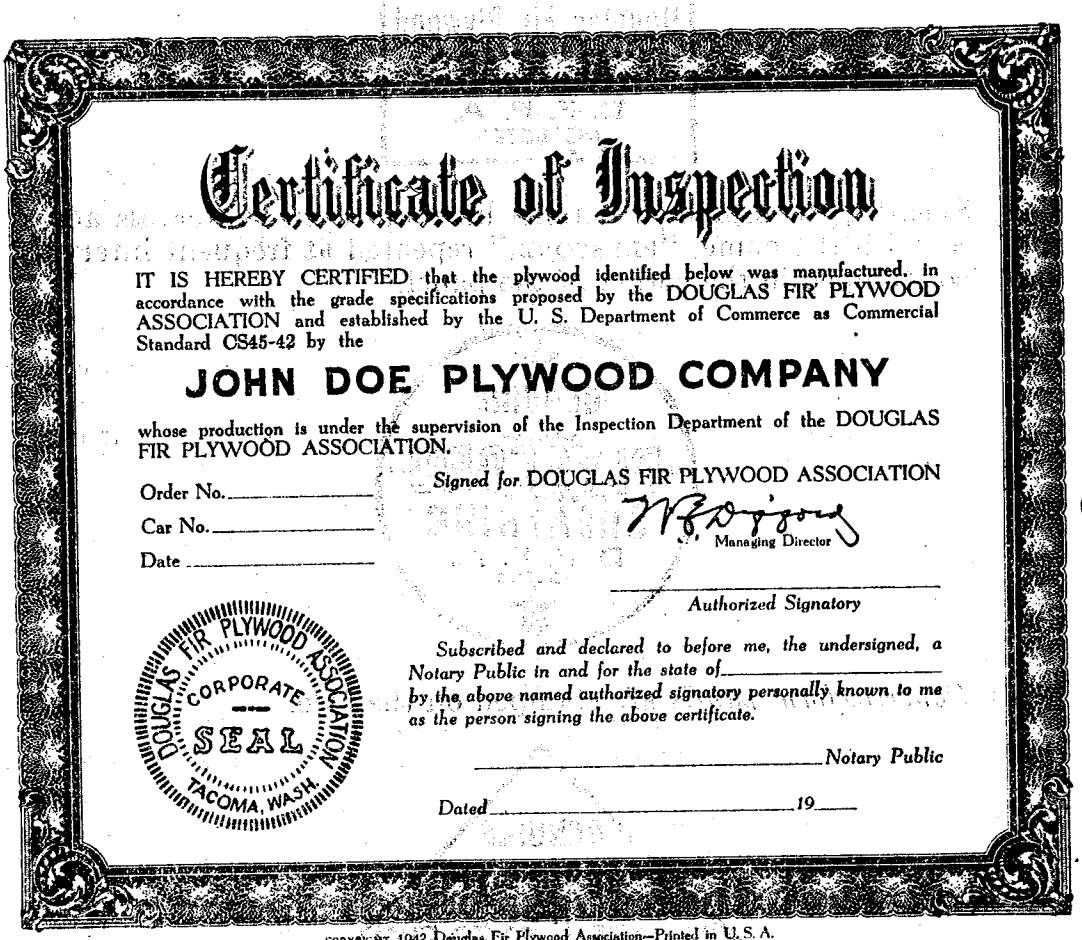
(*c*) Sheathing is scored in parallel lines at 16-inch intervals across the face, with the name, "PLYSCORD," repeated at frequent intervals, and also stamped in the corner of the panel.

(*d*) *Concrete-form panels* are stamped on the face.



(*e*) *All Exterior-type plywood* is stamped or branded on the edge.

39. The Douglas Fir Plywood Association maintains an inspection bureau for the careful grading of its members' products. By the use of certificates on carload lots, the first unloading buyer of a carload is assured of receiving plywood of the grade specified. This is of special value to buyers of industrial-grade plywood which, because of frequent odd sizes, cannot be grade marked separately.



Certificate of Inspection

IT IS HEREBY CERTIFIED that the plywood identified below was manufactured in accordance with the grade specifications proposed by the DOUGLAS FIR PLYWOOD ASSOCIATION and established by the U. S. Department of Commerce as Commercial Standard CS45-42 by the

JOHN DOE PLYWOOD COMPANY

whose production is under the supervision of the Inspection Department of the DOUGLAS FIR PLYWOOD ASSOCIATION.

Order No._____

Car No._____

Date _____

Signed for DOUGLAS FIR PLYWOOD ASSOCIATION

Managing Director

_____

Authorized Signatory

DOUGLAS FIR PLYWOOD ASSOCIATION CORPORATE SEAL TACOMA, WASH.

*Subscribed and declared to before me, the undersigned, a Notary Public in and for the state of*_____ *by the above named authorized signatory personally known to me as the person signing the above certificate.*

_____ *Notary Public*

*Dated*_____ *19*____

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FIGURE 3.—*Inspection certificate of the Douglas Fir Plywood Association.*

NOMENCLATURE AND DEFINITIONS

Back.—The side reverse to the face of the panel.

Centers.—See *cores.*

Checks.—Small splits running parallel to the grain of the wood caused chiefly by strains produced in seasoning.

Cores.—Cores or centers are the innermost layer in plywood construction.

Crossbanding.—Veneer used in the construction of plywood with five or more plies. In 5-ply construction it is placed at right angles between the core and faces.

Defects, open.—Checks, splits, open joints, cracks, loose knots, and other defects interrupting the smooth continuity of the panel surface.

Face.—The better side of a panel in any grade calling for a face and a back; also, either side of a panel where the grading rules draw no distinction between faces.

Heartwood.—The darker-colored wood occurring in the inner portion of the tree, sometimes referred to as "heart."

Knots.—Cross section of a branch or limb whose grain usually runs at right angles to that of the piece in which it is found.

Knotholes.—Voids produced by the dropping of knots from the wood in which they were originally embedded.

Lap.—A condition where the veneers used are so misplaced that one piece overlaps the other rather than making a smooth butt joint.

Patches.—Insertions of sound wood glued and placed into panels from which defective portions have been removed.

Pitch pockets.—A pitch pocket is a well-defined opening between rings of annual growth, usually containing, or which has contained, more or less pitch, either solid or liquid.

Pitch streaks.—A pitch streak is a well-defined accumulation of pitch in a more or less regular streak.

Sapwood.—The lighter-colored wood occurring in the outer portion of the tree, sometimes referred to as "sap."

Shim.—A long, narrow patch not more than 3/16 inch wide.

Streaks.—See, *Pitch streaks.*

METHOD OF ORDERING

The established procedure in specifying the size and grade of plywood is to name the number of plies, width, length, grade, moisture resistance, and finished thickness, and whether sanded or unsanded.

"Width" always refers to distance across the grain of the face plies; "length" refers to the distance along the grain. The width should always be specified first.

If, for example, you require 100 pieces of plywood ¼ inch thick, 48 inches wide, and 96 inches long, for interior or semiexposed conditions, one side of which is to be nailed against a wall where it will not show, but the other side is to be exposed to view and painted, this material should be ordered as follows:

> Douglas Fir Plywood: 100 pcs., 3-ply 48″×96″, Wallboard Grade, Moisture-resistant, Sanded 2 Sides to ¼″ thickness.

For most uses, sanded panels are desirable, but there are occasional uses where unsanded panels of a "Sound" or other grade are satisfactory. Such panels should be specified unsanded.

For special types of service, special features may be desirable in plywood panels, such as omission of oiling for concrete-form panels, extra-thick faces for certain architectural treatments, etc. In such cases, the special treatment or feature should be stated after the standard specification. For example, a "Standard Sound 2 Sides" panel of ⅜-inch thickness is desired for permanent exterior use. The order should read:

> Douglas Fir Plywood: 100 pcs., 3-ply 48″×96″, Sound 2 Sides, Exterior, Sanded 2 Sides to ⅜″ thickness (Add further special requirements).

GRADE USE CLASSIFICATION FOR DOUGLAS FIR PLYWOOD

The following chart is offered by the Douglas Fir Plywood Association as a rough guide to the grades generally suitable to the various uses listed. Where the material is to be exposed to the weather, plywood of "Exterior" type should be specified.

Use	Types		Grades								
	Moisture resistant	Exterior for permanent exposure to weather	Good 2 sides (exterior only)	Good 1 side (exterior only)	Sound 2 sides	Sound 1 side	Wallboard (moisture resistant only)	Concrete-form panels	Sheathing	Automobile industrial stock
Amusement-park devices	X	X			X	X	X			
Archways	X	X			X		X			X
Auto-body parts	X	X	X		X	X				X
Auto trailers	X						X			
Base molding		X			X	X				
Benches		X			X	X	X			
Billboards	X	X				X				
Pins		X	X	X	X					
Birdhouses		X			X					
Boats	X									
Bookcases	X						X			
Boxes, trays, etc	X						X			
Breakfast nooks	X									
Bulletin boards	X				X					
Cabinets:										
General	X				X					
Ice cream	X				X					
Kitchen	X						X			
Medicine	X				X					
Ceilings	X				X					
Chests	X						X			
Church pews	X						X			
Closets	X							X		
Clothes chutes	X	X								
Concrete forms	X				X	X				
Counter fronts	X				X					
Desks	X				X		X		X	
Display racks	X				X					
Drawers and bottoms	X	X			X		X			
Farm buildings	X									
Fixtures, store	X				X					
Flooring		X			X					
Flower boxes	X	X	X	X	X		X	X	X	
Furniture	X	X			X			X		
Garages	X	X								
Houses, play	X				X					
Ironing boards	X				X			X		
Lockers	X	X	X	X	X			X		
Manual training uses	X							X		
Mirror backs	X	X		X			X			
Paneling	X				X			X		
Partitions		X			X					X
Picnic tables	X									X
Radio cabinets		X			X		X			
Refrigerators	X				X			X		
Screens (folding)	X							X	X	
Sheathing	X				X		X			
Shelving		X			X					
Siding		X		X	X					
Signs	X								X	
Subflooring	X							X		
Sun room porch	X			X			X	X		
Table tops	X	X		X	X		X			
Toys	X	X			X		X	X		
Trailers	X	X							X	
Trench sheeting	X				X					
Trunks	X				X					
Wardrobes	X							X		
Walls	X				X		X			
Window displays	X				X		X			
Window seats	X				X		X	X		

EFFECTIVE DATE

The standard is effective for new production from November 16, 1942.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Each organization nominated its own representatives. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee.

PHILIP GARLAND (chairman), Oregon-Washington Plywood Co., 1549 Dock Street, Tacoma, Wash.
CRAIG SPENCER, Elliott Bay Mill Co., 600 W. Spokane St., Seattle, Wash.
NELSON S. PERKINS, Douglas Fir Plywood Association, Tacoma Bldg., Tacoma, Wash.
NORMAN O. CRUVER, The Wheeler Osgood Sales Corporation, 1216 St. Paul Ave., Tacoma, Wash.
CHARLES W. JACOB, John Bader Lumber Co., 2020 Clybourne Ave., Chicago, Ill.
WALTER JUNGE, Technical Division, Federal Housing Administration, Washington, D. C.

HISTORY OF PROJECT

Pursuant to a request from the manufacturers of Douglas fir plywood, a general conference of manufacturers, distributors, and users of the product was held at the Winthrop Hotel, Tacoma, Wash., on August 17, 1932, to consider the adoption of standard grading rules for the guidance of the industry. Manufacturers representing approximately 80 percent of the production of Douglas fir plywood were in attendance, as well as others interested in the distribution and use of the product. The proposed standard tentatively drafted by a committee of manufacturers was thoroughly discussed and several constructive changes were made. Following written acceptance by a satisfactory majority, the standard was promulgated as CS45–33, effective February 15, 1933.

FIRST REVISION

The standing committee as a result of an industry conference held in Tacoma, Washington, on August 3, 1936, recommended some modifications. The recommended revision was circulated on September 11, 1936, for written acceptance with the result that the revised standard was accepted and authorized by the industry for publication as Douglas Fir Plywood (Domestic Grades) (Second Edition), Commercial Standard CS45–36, effective November 1, 1936.

SECOND REVISION

Agreeable to a suggestion from the Federal Housing Administration, and following several conferences between representatives of the Forest Products Laboratory, the FHA and the plywood manufacturers, a second revision, so as to provide for two classes of moisture resistance

and changes in the sheathing grade, was proposed. On approval by the standing committee, this revision was circulated September 16, 1938, for acceptance. Following acceptance by a satisfactory majority, the success of the revision was announced on October 25, 1938, and the standard became effective for new production on November 10, 1938, as CS45–38.

THIRD REVISION

A general demand for the various grades of Douglas fir plywood as manufactured for permanent exterior use, led to the submission of a proposed revision by the Douglas Fir Plywood Association, to include detail requirements in the standard for seven distinct grades of the Exterior Type. Upon approval by the standing committee, the recommended revision was submitted on May 7, 1940, to the trade for written acceptance, and the establishment of the revision was announced on July 20, 1940. The revised standard became effective for new production on August 20, 1940, as CS45–40.

FOURTH REVISION

Pursuant to a request from the Douglas Fir Plywood Association, dated May 27, 1942, and following approval by the Standing Committee, the fourth revision was circulated on July 2, 1942, to the trade for written acceptance. The purpose of this revision was to make adjustments in the moisture-resistant type, so as to speed up the production of those grades and sizes essential for defense construction needs. The major changes were the elimination of the grades "Good 2 Sides" and "Good 1 Side," the addition of a new grade "Sound 1 Side" and a considerable reduction in the number of standard panel sizes. Following acceptance by a preponderant majority, the establishment of the revision was announced on October 30, 1942, as Commercial Standard CS45–42. It supersedes both CS45–40 (Domestic Grades) and CS45E–36 (Export Grades), since Douglas fir plywood is now graded on the same basis whether for domestic or export purposes.

CS 45–42

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date _____

Division of Trade Standards,
National Bureau of Standards,
Washington, D. C.

Gentlemen:

Having considered the statements on the reverse side of this sheet, we accept the Commercial Standard CS45–42 as our standard of practice in the

Production [1] Distribution [1] Use [1] Testing [1]
of Douglas fir plywood.

We will assist in securing its general recognition and use, and will cooperate with the standing committee to effect revisions of the standard when necessary.

Signature of individual officer _____
(in ink)

(Kindly typewrite or print the following lines)

Name and title of above officer _____

Organization _____
(Fill in exactly as it should be listed)

Street address _____

City and State _____

(Cut on this line)

[1] Please designate which group you represent by drawing lines through the other three. Please file separate acceptances for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval, the words "in principle" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard, and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

The organizations and individuals listed below have accepted these grading rules as their standard of practice in the production, distribution, and use of Douglas fir plywood. Such endorsement does not signify that they may not find it necessary to deviate from the standard nor that producers so listed guarantee all of their products in this field to conform with the requirements of this standard. Therefore, specific evidence of quality certification should be obtained where required.

ASSOCIATIONS

American Specification Institute, Chicago, Ill.
Arizona Retail Lumber & Builders Supply Association, Phoenix, Ariz.
Associated General Contractors of America, Inc., Washington, D. C.
California Redwood Association, San Francisco, Calif. (In Principle.)
Carolina Lumber & Building Supply Association, Charlotte, N. C. (In Principle.)
Chicago Lumber Institute, Chicago, Ill.
Douglas Fir Plywood Association, Tacoma, Wash. (In Principle.)
Michigan Retail Lumber Dealers Association, Lansing, Mich.
National Hardwood Lumber Association, Chicago, Ill. (In Principle.)
National State Association, New York, N. Y.
Northwestern Lumbermen's Association, Minneapolis, Minn.
Producers' Council, Inc., The, Washington, D. C. (In Principle.)
Southern California Retail Lumber Association, San Diego, Calif.
Southern Hardwood Producers, Inc., Memphis, Tenn. (In Principle.)
West Coast Lumbermen's Association, Seattle, Wash.
Wisconsin Retail Lumbermen's Association, Milwaukee, Wis.

FIRMS

Aberdeen Plywood Corporation, Aberdeen, Wash.
Adams, Franklin O., Tampa, Fla.
Adams & Kelly Co., Omaha, Nebr.
Addison-Rudesal Co., Atlanta, Ga.
Aetna Plywood & Veneer, Chicago, Ill.
Altfillisch, Charles, Decorah, Iowa.
Amarillo Sash & Door Co., Amarillo, Tex.
American Plywood Corporation, New London, Wis.
Am-Mex Sales Co., Inc., Buffalo, N. Y.
Anacortes Veneer, Inc., Anacortes, Wash.
Andrews, Jones, Biscoe & Whitmore, Boston, Mass.
Andrews Lumber Co., C. E., New Bethlehem, Pa.
Angelina County Lumber Co., Keltys, Tex.
Antrim Lumber Co., St. Louis, Mo.
Arizona Sash Door & Glass Co., Phoenix, Ariz.
Armstrong-Walker Lumber Co., Terre Haute, Ind.
Arrington & Co., Inc., W. C., Norfolk, Va.
Ashton Co., C. J., Detroit, Mich.
Associated Plywood Mills, Olympia, Wash., Willamina, Oreg., and Eugene, Oreg.
Atlanta Oak Flooring Co., Atlanta, Ga.
Bader Lumber Co., John, Chicago, Ill.
Baldridge Lumber Co., J. C., Albuquerque, N. Mex.
Balfour, Guthrie & Co., Ltd., Tacoma, Wash.
Baltimore, City of, Bureau of Plans & Surveys, Architectural Division, Baltimore, Md.
Barber & Ross Co., Washington, D. C.
Barger Millwork Co., Statesville, N. C.
Barnes Lumber Co., W. F. & J. F., Waco, Tex.
Barthmaier, Eugene V., Philadelphia, Pa.
Baton Rouge Sash & Door Works, Inc., Baton Rouge, La.
Beach Mill & Supply Co., Miami Beach, Fla.
Beasley & Sons Co., Nashville, Tenn.
Beaver Falls Planing Mill Co., Beaver Falls, Pa.
Bellingham Plywood Corporation, Bellingham, Wash.
Bennett-Bailey Lumber Co., Minneapolis, Minn.

Berger, F. E., & R. L. Kelley, Champaign, Ill.
Besch Co., The Carl, New York, N. Y.
Bial, George F., Hasbrouck Heights, N. J.
Billings Sash & Door Co., Billings, Mont.
Binswanger & Co., Inc., Richmond, Va.
Bishop, Horatio W., La Mesa, Calif.
Black Mountain Lumber Co., Inc., Black Mountain, N. C.
Blackburn, Inc., Robert, Milwaukee, Wis.
Blanchard Lumber Co., New York, N. Y.
Blithe, Wesley Lesher, Philadelphia, Pa.
Boehm, George A., New York, N. Y.
Bogert, C. V. R., Hackensack, N. J.
Bogner, Harry, Milwaukee, Wis.
Borg-Warner Corporation, Norge Division, Muskegon Heights, Mich.
Bosman & Casson, Inc., Harrison, N. J.
Botsford Lumber Co., Winona, Minn.
Brainerd, Harry B., New York, N. Y. (In Principle.)
Braseth & Houkom, Fargo, N. Dak.
Brazer, Clarence W., New York, N. Y.
Bridge Tables & Novelties, Inc., Lowell, Mass.
Brill Co., The J. G., Philadelphia, Pa.
Brown-Borhek Co., Bethlehem, Pa.
Brown, Graves Co., Akron, Ohio.
Brown, Wheelock, Harris, Stevens, Inc., New York, N. Y.
Bruett Lumber, Inc., T. A., Milwaukee, Wis.
Brust & Brust, Milwaukee, Wis.
Buckley Door Co., F. S., San Francisco, Calif.
Buechner & Orth, St. Paul, Minn. (In Principle.)
Buffalo Plywood Corporation, Buffalo, N. Y.
Builder's Supply Co., Bismarck, N. Dak.
Building Service, Inc., Great Falls, Mont.
Burnside Veneer Co., Inc., Burnside, Ky.
Burrow Lumber Co., Canyon, Happy and Dalhart, Tex.
Byron Sash & Door Company, Inc., Louisville, Ky.
California Builders Supply Co., Ltd., Oakland, Calif.
California Door Co., The, Los Angeles, Calif.
California Panel & Veneer Co., Los Angeles, Calif.
Cameron Lumber Co., Inc., Newburgh, N. Y.
Camp Plywood Co., Inc., The E. W., Cincinnati, Ohio, and Indianapolis, Ind.
Cannon & Mullen, Salt Lake City, Utah.
Carey, Lombard, Young & Co., Oklahoma City, Okla.
Carhart Lumber Co., Wayne, Nebr.
Carr, Adams & Collier Co., Dubuque, Iowa.
Carrom Industries, Inc., Ludington, Mich.
Casein Co. of America (Division of The Borden Co.), Seattle, Wash.
Cavalier Corporation, Chattanooga, Tenn.
Central Jersey Wholesale Supply Co., Trenton, N. J.
Chandler & Co., Inc., Knoxville, Tenn.
Chapin, Rollin C., Minneapolis, Minn. (In Principle.)
Chapin Lumber Co., The, Aurora, Colo.
Charlottesville Lumber Co., Inc., Charlottesville, Va.
Chase Lumber Co., Payson, Utah.
Chemical Corporation of America, Los Angeles, Calif.
Chicago & Riverdale Lumber Co., Chicago, Ill.
Chicago, Rock Island & Pacific Railway, Chicago, Ill.
Chicago Trim & Plywood Co., Chicago, Ill.
Christmann Veneer & Lumber Co., St. Louis, Mo.
Chrysler Corporation, Highland Park, Mich.
Cincinnati Sash & Door Co., The, Cincinnati, Ohio.
Clark Veneer Co., Walter, Grand Rapids, Mich.
Cleary Millwork Co., Inc., Ansonia, Conn.
Cleveland Window Glass & Door Co., Cleveland, Ohio.
Cockrum Lumber Co., Inc., Knoxville, Tenn.
Cogswell Construction Co., The, Baltimore, Md.
Coit, E., New York, N. Y.
Combs Lumber Co., Inc., Lexington, Ky.
Comfort Coal-Lumber Co., Inc., Hackensack, N. J.
Concrete Grid Forms, Berkeley, Calif.
Conrad Lumber Co., DeLand, Fla.
Conwell & Co., E. L., Philadelphia, Pa.
Coolbaugh & Son Co., C. C., Gloucester City, N. J.
Coolerator Co., The, Duluth, Minn.
Cooper, W. E., Los Angeles, Calif.
Corddry Co., The, Snow Hill, Md.
Cottonwood Lumber Co., Cottonwood, Ariz.
Crompton & Knowles Loom Works, Worcester, Mass.
Crowell & Lancaster, Bangor, Maine.
Cunningham, Lamb & Prince, Inc., Charlestown, Mass.
Curran Bros., Pomona, Calif.
Curtis Co's., Inc., Lincoln, Nebr., and Wausau, Wis.
Dakota Sash & Door Co., Aberdeen, S. Dak.
D'Arcy Co., Dover, N. H.

Davidson Sash & Door Co., Austin, Tex.
Davis Hardwood Co., San Francisco, Calif.
Davis Lumber Co., Schenectady, N. Y.
De Jarnette, Charles Wagner, Des Moines, Iowa.
De Luxe Metal Furniture Co., Warren, Pa.
Deacon Co., J. C., Chicago, Ill.
Dealers Wholesale Supply, Inc., Detroit, Mich.
Delehanty, Andrew L., Albany, N. Y.
Detroit Store Fixture Co., Detroit, Mich.
Dibble Lumber Co., The S. B., N. Adams, Mass.
Dickerson Lumber Co., Huntington, W. Va.
District of Columbia, Office of Municipal Architect, Engineer Dept., Washington, D. C.
Dix Lumber Co., North Cambridge, Mass.
Doerr, J. G., Boise, Idaho.
Donlin-Johnson Co., St. Cloud, Minn.
Dougherty Lumber Co., The, Cleveland, Ohio.
Dower Lumber Co., John, Tacoma, Wash.
Dubuque, Retail Lumber Yards, of Dubuque, Iowa.
Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y.
Dykes Lumber Co., New York, N. Y.
Edison Wood Products, Inc., New London, Wis.
Eiler Lumber Co., Edward, Pittsburgh, Pa.
Elliott Bay Mill Co., Seattle, Wash.
Emery Industries, Inc., Cincinnati, Ohio.
Emmons-Hawkins Hardware Co., Huntington, W. Va.
Engler Millwork Corporation, Jersey City, N. J.
Evans & Callaway, Fowler, Ind.
Evans & Co., H. C., Chicago, Ill.
Evans Lee Co., The, Eau Claire, Wis.
Evans-Macarthur Co., New York, N. Y.
Evansville Sash & Door Co., Inc., Evansville, Ind.
Everett & Associates, H. F., Allentown, Pa.
Exchange Lumber Co., Inc., Rochester, N. Y.
Farley & Loetscher Mfg. Co., Dubuque, Iowa.
Ferguson Bros. Manufacturing Co., Hoboken, N. J.
Fessenden Hall, Philadelphia, Pa.
Fink & Schindler Co., The, San Francisco, Calif.
Fischer Lime & Cement Co., Memphis, Tenn.
Fish & Hunter Co., The, Deadwood and Rapid City, S. Dak.
Fitz-Gibbon, T. David, Norfolk, Va. (In Principle.)
Flint Sash & Door Co., Inc., Flint, Mich.
Florence Builders Supply Co., Florence, S. C.
Florida, University of, School of Architecture, Gainesville, Fla.
Forsyth Hardwood Co., San Francisco, Calif.
Fort Wayne Builders' Supply Co., Fort Wayne, Ind.
Frick-Gallagher Manufacturing Co., Wellston, Ohio.
Fry Fulton Lumber Co., St. Louis, Mo.
Fuller & Co., W. P., Portland, Oreg., and Spokane and Seattle, Wash.
Fuer, William C., Honolulu, Hawaii.
Gale Manufacturing Co., Albion, Mich.
General Bronze Corporation, Long Island City, N. Y.
General Fireproofing Co., The, Youngstown, Ohio.
General Millwork Corporation, Utica, N. Y.
General Motors Corporation, Detroit, Mich.
General Paint Corporation, Spokane, Wash.
Georgeson, F. T., Eureka, Calif.
Gibb, Office of Arthur N., Ithaca, N. Y.
Gibbs Lumber Co., Anaheim, Calif.
Ginsberg & Sons, Inc., D., Corona, N. Y.
Globe Machine & Stamping Co., Cleveland, Ohio.
Globe-Wernicke Co., The, Cincinnati, Ohio.
Gloekler Corporation, Bernard, Pittsburgh, Pa.
Godfrey Lumber Co., Boston, Mass.
Grand Rapids Store Equipment Co., Grand Rapids, Mich.
Great Lakes Sash & Door Co., The, Cleveland, Ohio.
Grogan-Robinson Lumber Co., Great Falls, Mont.
Hahn, Stanley W., Silver Spring, Md.
Hall-Gregg, Inc., Somerville, Mass.
Hallack & Howard Lumber Co., The, Denver, Colo.
Hannaford & Sons, Samuel, Cincinnati, Ohio.
Haralson & Mott, Fort Smith, Ark.
Harbor Plywood Corporation, Hoquiam, Wash., and Jacksonville, Fla.
Harbor Plywood Corporation of California, San Francisco, Calif.
Harbor Sales Co., Inc., The, Washington, D. C., and Baltimore, Md.
Harper & West, Boston, Mass.
Harrison Co., The W. H., Grand Island, Nebr.
Hartung & Hansen, Inc., Seattle, Wash.
Hastings & Co., Inc., A. W., Somerville, Mass.

Hawkins Lumber & Warehouse Co., Boston, Mass.
Heidritter Lumber Corporation, Elizabeth, N. J.
Helmle, Henry R., Springfield, Ill.
Henrich Panel Co., Inc., Buffalo, N. Y.
Henshaw Refrigeration & Fixture Co., San Francisco, Calif.
Hentz, Adler & Shutze, Atlanta, Ga.
Herrick Refrigerator & Cold Storage Co., Waterloo, Iowa.
Higgins, Charles H., New York, N. Y.
Hill Lumber Co., E. M., Pittsburgh, Pa.
Hinckley Lumber Co., The Dwight, Cincinnati, Ohio.
Hinckley & Son Co., John, Yarmouthport and Hyannis, Mass.
Hinshaw Lumber Co., J. F., Gering, Nebr.
Hoffman Co., Earl L., Los Angeles, Calif.
Hoffmann Lumber Co., Pittsburgh, Pa.
Holderle Bros., Inc., Rochester, N. Y.
Holsman & Holsman, Chicago, Ill.
Honerkamp Co., Frank W., New York, N. Y.
Hope, Frank L., Jr., San Diego, Calif.
Hopkins, Albert Hart, Buffalo, N. Y.
Houston Lumber Co., The A. C., Wichita, Kans.
Huber-Lanctot Housewrecking Corporation, Buffalo, N. Y.
Huck Manufacturing Co., Quincy, Ill.
Hudson, Flynn E. Jr., Montgomery, Ala.
Humphrey-Horsley Co., New York, N. Y.
Hussey-Williams Co., Inc., Ozone Park, N. Y.
Illinois, University of, Physical Plant Department, Urbana, Ill.
Intermountain Consumers' Service, Inc., Denver, Colo.
Inter-State Lumber Co., Stillwater, Minn.
Interstate Sash & Door Co., The, Canton, Ohio, and Cleveland, Ohio.
Iowa Builders Supply Co., Cedar Rapids, Iowa.
Iron City Sash & Door Co., Pittsburgh, Pa.
Iron Mountain, City Lumber Yard of, Iron Mountain, Mich.
Ivey, Inc., Edwin J., Seattle, Wash.
Jefferson Wood Products Co., Jefferson, Wis.
Johnson, Wallwork & Dukehart, Portland, Oreg.
Jones Hardwood Co., San Francisco, Calif.
Kahn Associated Architects & Engineers Inc., Albert, Detroit, Mich.
Karcher & Smith, Philadelphia, Pa. (In Principle.)
Keely Plywood Co., Hal, Pittsburgh, Pa.
Keich & O'Brien, Warren, Ohio.
Kellogg & Son, Seattle, Wash.
Kellogg & Sons Co., Charles C., Utica, N. Y.
Kilham, Hopkins & Greeley, Boston, Mass.
Kimball Lumber Co., Watertown, Mass.
King Lumber Co., The, Bakersfield, Calif.
Knoff Woodwork Co., Mankato, Minn.
Koch Butchers' Supply Co., The, North Kansas City, Mo.
Koehl & Son, Inc., John W., Los Angeles, Calif.
Kohn, Robert D.,-Charles Butler, Architects Associated, New York, N. Y.
Kullberg Manufacturing Co., Minneapolis, Minn.
Kyle, Herbert S., Charleston, W. Va.
Lakeville Manufacturing Co., Lindenhurst, Long Island, N. Y.
Lambert Lumber Co., Leavenworth, Kans.
Lander Lumber Co., El Paso, Tex.
Larrick, Thomas, Athens, Ohio.
Law, Law & Potter, Madison, Wis.
Lawrence, Holford & Allyn, Portland, Oreg.
Leet Lumber Co., The H., Portsmouth, Ohio.
Leon, Inc., Octavius, Yonkers, N. Y.
Levy, Will, St. Louis, Mo.
Liberty Lumber & Manufacturing Co., Inc., Erwin, Tenn.
Liggett Drug Co., Inc., New York, N. Y.
Lisbon Lumber Co., Lisbon, Ohio.
Lloyd & Son, Ltd., C., Wingham, Ont., Canada.
Loeb, Laurence M., White Plains, N. Y.
Loetscher & Burch Manufacturing Co., Des Moines, Iowa.
Loizeaux Lumber Co., J. D., Plainfield, N. J.
Los Angeles, City of, Los Angeles, Calif.
Lovell-Denniston Lumber Co., Eldora, Iowa.
Luhring Lumber Co., Inc., Evansville, Ind.
Lumber Dealers, Inc., Denver, Colo.
Lumber & Millwork Co. of Philadelphia, The, Philadelphia, Pa.
Lumbermens' Supply, Inc., Sacramento, Calif.
Lyman-Hawkins Lumber Co., The, Akron, Ohio.
Lyon Metal Products, Inc., Aurora, Ill.
M & M Woodworking Co., Portland, Oreg.
Mahoney Sash & Door Co., The, Canton, Ohio.
Mahood, Alex. B., Bluefield, W. Va.
Markland Contracting Co., M. B., Atlantic City, N. J.
Marsh & Truman Lumber Co., Chicago, Ill.
Marshall Wright Lumber Co., Inc., Ionia, Mich.

Martin, Edgar, Chicago, Ill.
Mason City Millwork Co., Mason City, Iowa.
Mason & Co., George D., Detroit, Mich.
Mason Lumber Co., Jacksonville, Fla.
Mason Lumber Co., The, Mason, Ohio.
Massena & duPont, Inc., Wilmington, Del.
Massey Concrete Products Co., Chicago Ill.
Matol, Inc., D. A., Chicago, Ill.
Mauran, Russell, Crowell & Mullgardt, St. Louis, Mo.
McCoy & Co., Inc., Lawrence R., Worcester, Mass.
McCray Refrigerator Co., Kendallville, Ind.
McCulloch, E. Russell, Atlanta, Ga.
McGoldrick Lumber Co., Spokane, Wash.
McLean Manufacturing Co., Pittsburgh, Pa.
McPhillips Manufacturing Co., Mobile, Ala.
Mechanics Lumber Co., Inc., New York, N. Y.
Merrill-Schaaf Lumber Co., Pierre, S. Dak.
Michigan Wholesalers, Inc., Fort Wayne Ind.
Mid-West Lumber Co., The, Mankato, Kans.
Miles Lumber & Coal Co., A. W., Livingston, Mont.
Miller & Sons, W. H., Madison, Ind.
Miller & Yeager, Terre Haute, Ind.
Mills, Rhines, Bellman & Nordhoff, Toledo, Ohio.
Millwork Supply Corporation, Seattle, Wash.
Modern Refrigerator Works, Glendale, Calif.
Moline Furniture Works, Moline, Ill.
Montgomery & Patteson, Charleston, W. Va.
Moore & Co., Le Mars, Iowa.
Moore & Co., Dallas, Tex.
Moore Dry Dock Co., Oakland, Calif.
Moore-Handley Hardware Co., Birmingham, Ala.
Moore Lumber Co., L. A., Mason City, Iowa.
Mooser, William, San Francisco, Calif.
Morgan, David H., Philadelphia, Pa.
Morgan Millwork Co., Baltimore, Md.
Morgan Sash & Door Co., Oklahoma City, Okla.
Morris Plains Lumber & Coal Co., Morris Plains, N. J.
Morrison-Merrill & Co., Salt Lake City, Utah.
Mowry & Co., Inc., Geo., Derry, Pa.
Mueller & Hair, Hamilton, Ohio.
Muhlenberg Bros., Reading, Pa.
Mullen Manufacturing Co., San Francisco, Calif.
Mundie, Jensen, Bourke & Havens, Chicago, Ill.
Nachtegall Manufacturing Co., Grand Rapids, Mich.
Nash Kelvinator Corporation, Detroit, Mich.
Nashville Sash & Door Co., Nashville, Tenn.
Nassau Suffolk Lumber & Supply Corp., Amityville, N. Y.
National Plywood Co., Inc., New York, N. Y.
National Plywoods, Inc., Chicago, Ill.
National Refrigerators Co., St. Louis, Mo.
National Sash & Door Co. (Hortman-Salmen Co., Inc., Owner), New Orleans, La.
National Steel Car Corporation, Ltd., Hamilton, Ontario, Canada.
Neal-Blun Co., Savannah, Ga.
Nelson, Albert L., St. Louis, Mo.
New Orleans, Inc., Better Business Bureau of, New Orleans, La. (In Principle.)
New York State College of Forestry, Syracuse, N. Y.
New York Wood Working Corporation, New York, N. Y.
Newton Co., F. H., No. Cambridge, Mass.
Newton Lumber Co., The, Pueblo, Colo.
Newton Lumber & Manufacturing Co., The, Colorado Springs, Colo.
Nicolai Door Sales Co., San Francisco, Calif.
Northern Lumber Co., Billings, Mont.
Northwest Door Co., Tacoma, Wash.
Nurenburg, W. S., Fort Worth, Tex.
Oakland Public Schools, Oakland, Calif.
Officer, Gwynn, Berkeley, Calif.
Olympic Plywood Co., Shelton, Wash.
Omaha Fixture & Supply Co., Omaha, Nebr.
Omaha Hardwood Lumber Co., Omaha, Nebr.
Oregon Plywood Corporation, Buffalo, N. Y.
Oregon-Washington Plywood Co., Everett, Wash., and Tacoma, Wash.
Ostlund & Johnson, San Francisco, Calif.
Pacific Lumber Agency, Sumner, Wash.
Pacific Mutual Door Co., Chicago Branch, Chicago, Ill.
Packard Motor Car Co., Detroit, Mich.
Palley Manufacturing Co., Pittsburgh, Pa.
Parshelsky Bros. Inc., Brooklyn, N. Y.
Parsons Cabinet Shop, R. L., Decatur, Ala.
Patmore Millwork Co., Bridgeport, Conn.
Patten-Blinn Lumber Co., Los Angeles, Calif.
Patton Lumber Co., Ashland, Ky.

Pease Woodwork Co., Inc., Cincinnati, Ohio.
Peerless Built-in Fixture Co., Berkeley, Calif.
Pehrson, G. A., Spokane, Wash.
Pennsylvania, Commonwealth of, Department of Property & Supplies, Harrisburg, Pa.
Pennsylvania State College, The., Dept. of Forestry, State College, Pa. (In Principle.)
People's Planing Mill (Cole Brothers, Proprietors), Punxsutawney, Pa.
Pepper, George W., Jr., Philadelphia, Pa.
Perlin Lumber Co., Brooklyn, N. Y.
Phelps & Dewees & Simmons, San Antonio, Tex.
Philco Corporation, Philadelpnia, Pa.
Philco Radio & Television Corporation, Philadelphia, Pa.
Platt & Bro., F. P., New York, N. Y.
Plywood Detroit Co., Detroit, Mich.
Plywood Distributing Co., Chicago, Ill.
Plywood Products Corporation, Bay City, Mich.
Portsmouth Lumber Corporation, Portsmouth, Va.
Potter Lumber & Supply Co., The, Worthington, Ohio.
Powe Lumber Co., Thomas E., St. Louis Mo.
Proctor & Bowie Co., Winslow, Maine.
Purves, Cope & Stewart, Philadelphia, Pa.
Queen City Sash & Door Co., The, Cincinnati, Ohio.
Quigley Co., J. R., Gloucester City, N. J.
Radford & Sanders, Inc., Baltimore, Md.
Ream Co., George E., Los Angeles, Calif.
Red River Lumber Co., The, Los Angeles, Calif.
Reo Motors, Inc., Lansing, Mich.
Richardson-Phelps Lumber Co., Grinnell, Iowa.
Risser Lumber Co., Art, Paris, Ill.
Robbins Door & Sash Co., Scranton, Pa.
Robert & Co., Inc., Atlanta, Ga.
Roberts Corporation, U. N., Davenport, Iowa.
Robinson Manufacturing Co., Everett, Wash.
Rochester, Board of Education of, Rochester, N. Y.
Rock Island Lumber Co., Teachout Division, Cleveland, Ohio.
Rockwell Bros. & Co. (Rockwell Lumber Co.), Houston, Tex.
Roddis Co., Chicago, Ill.
Roddis Lumber & Veneer Co., Milwaukee, Wis., and Marshfield, Wis.
Roddis Lumber & Veneer Company of Mo., Dallas, Tex., and other cities.
Roddis Panel & Door Co., Cincinnati, Ohio.
Roddis Plywood & Door Co., Inc., New York, N. Y.
Roemer Bros. Lumber Co., Bowling Green, Ky.
Rogers Lumber Co., The T. H., McAlester, Okla.
Rohrer Lumber Co., D. J., Clintonville, Wis.
Rosenberger & Co., Inc., John W., Winchester, Va.
Rounds & Porter Co., Wichita, Kans.
Rudinger, Inc., C. R., South Kearny, N. J.
Ruffin & Payne, Inc., Richmond, Va.
Ruggles Lumber Co., Carlos, Springfield, Mass.
Ruse & Co., Baltimore, Mo.
Rutherford Display Co., St. Paul, Minn.
Sacramento, Better Business Bureau of, Sacramento, Calif. (In Principle.)
St. Louis Sash & Door Works, St. Louis, Mo.
St. Paul & Tacoma Lumber Co., Tacoma, Wash. (In Principle.)
Santa Fe Builders Supply Co., Albuquerque and Santa Fe, N. Mex.
Schiefer & Sons, National City, Calif.
Schroeder Sales Co., Houston, Tex.
Schuette Co., William, Pittsburgh, Pa.
Schulzke, William H., Moline, Ill.
Searle & Chapin Lumber Co., Lincoln, Nebr.
Sears, Roebuck & Co., Chicago, Ill.
Seymour Commercial Co., Inc., Seymour, Conn.
Shanley, Geo. H., Great Falls, Mont.
Sheip Manufacturing Co., Henry H., Philadelphia, Pa.
Shenk Co., Henry, Erie, Pa.
Sidells, Arthur F., & Ellis M. Keppel, Warren, Ohio.
Simmons, Inc., Minneapolis, Minn.
Simons Lumber Co., Henry, Minneapolis, Minn.
Sloan Lumber Co., Fort Worth, Tex. (In Principle.)
Smith, Wilton, San Francisco, Calif.
Smith & Sons, J. E., Philadelphia, Pa.
Snedaker & Co., Inc., Frank C., Philadelphia, Pa.
Snell Sash & Door Co., St. Paul, Minn.
Snellstrom Lumber Co., Eugene, Oreg.
Snook-Veith Lumber Co., The, Cincinnati, Ohio.
Solie Lumber Co., Janesville, Wis.
Sothman Co., The, Grand Island, Nebr.
South Park Lumber Co., St. Joseph, Mo.
South Side Lumber & Supply Co., The, Toledo, Ohio.
Southern Box & Lumber Co., Wilmington, N. C. (In Principle.)
South West Bell Telephone Co., St. Louis, Mo.
Southwestern Sash & Door Co., Albuquerque, N. Mex.

Southwestern Sash & Door Co., Joplin, Mo.
Southwestern Sash & Door Co., Inc., El Paso, Tex.
Sowers-Benbow Lumber Co., The, Columbus, Ohio.
Spahn & Rose Lumber Co., Dubuque, Iowa.
Sparks Withington Co., The, Jackson, Mich.
Spencer & Co., R. B., Waco, Tex.
Spokane Sash & Door Co., Spokane, Wash.
Standard Cabinet Works, Inc., Los Angeles, Calif.
Standard Lumber Co., Pine Bluff, Ark.
Standard Lumber Co., Spokane, Wash.
Stanton & Son, E. J., Los Angeles, Calif.
Staub & Rather, Houston, Tex.
Steele & Hibbard Lumber Co., St. Louis, Mo.
Stiles Lumber & Veneer Co., Grand Rapids, Mich.
Stockton Lumber Co., Inc., Stockton, Calif.
Stoetzel, Ralph E., Chicago, Ill.
Stopper, Eugene A., Philadelphia, Pa.
Store Kraft Mfg. Co., The, Beatrice, Nebr.
Stouck, Reaser Co., Inc., Gettysburg, Pa.
Strable Hardwood Co., Oakland, Calif.
Streator Furniture Shops, Inc., Streator, Ill.
Strong & Hale Lumber Co., The, Portland, Conn.
Sutliff Co., Milan R., Ashland, Wis.
Swan Lake Moulding Co., Klamath Falls, Oreg.
Sweet's Catalog Service, New York, N. Y.
Sweetwater Sash & Door Co., Sweetwater, Tex.
Swenson Construction Co., Kansas City, Mo.
Swift Lumber Co., Inc., Utica, N. Y.
Syracuse University, Syracuse, N. Y.
Taylor, Ellery K., St. Paul, Minn.
Taylor, Edward Cray & Ellis Wing, Los Angeles, Calif.
Teachout Sash Door & Glass Co., Detroit, Mich.
Tennessee Glass Co., Nashville, Tenn.
Theiling-Lothman Manufacturing Co., St. Louis, Mo.
Textor Lumber Co., Wilkinsburg, Pa.
Thompson Bros. Boat Manufacturing Co., Peshitgo, Wis.
Throop-Martin Co., The, Columbus, Ohio.
Toombs-Fay Co., Springfield, Mo.
Trexler Lumber Co., Allentown, Pa.
Trimble, R. Maurice, Pittsburgh, Pa.
Tub River Lumber Co., Inc., Welch, W. Va.
Tulane Hardwood Lumber Co., Inc., New Orleans La.
Tum-A-Lum Lumber Co., Walla Walla, Wash.
Turner Lumber Co., Houston, Tex.
Twin City Hardwood Lumber Co., St. Paul, Minn., and Fargo, N. Dak.
Twin Oaks Builders Supply Co., Eugene, Oreg.
Underwood Coal & Supply Co., Mobile, Ala.
United-Chemical & Organic Products, Chicago, Ill. (In Principle.)
United States Plywood Corporation, Cincinnati, Ohio, Seattle, Wash., Rochester, N. Y.
Van Pelt, John V., Patchogue, N. Y.
Van Winkle Bromley Lumber Co., Paterson, N. J.
Vaughan & Sons, Geo. C., San Antonio, Tex. and Houston, Tex.
Vickere Lumber Co., T. W., Sheridan, Wyo.
Viking Refrigerators, Inc., Kansas City, Mo.
Virginia Polytechnic Institute, Blacksburg, Va.
Voell, Richard F., Alexandria, Va.
Waddell Co., Inc., The, Greenfield, Ohio.
Walker & Weeks, Cleveland, Ohio.
Walsh, Louis A., Waterbury, Conn. (In Principle.)
Wanke Panel Co., Portland, Oreg.
Ware & McClenahan, Salt Lake City, Utah.
Washington Veneer Co., Olympia, Wash., and Fort Worth, Tex.
Washington Woodworking Co., Inc., The, Washington, D. C.
Watertown Sash & Door Co., Watertown, S. Dak.
Welch, Carroll E., Huntington, N. Y.
West Woodworking Co., Chicago, Ill.
Western Door & Sash Co., Oakland, Calif.
Western Electric Co., Inc., New York, N. Y.
Weyerhaeuser Sales Co., Tacoma, Wash.
Wheeler Osgood Sales Corporation, Tacoma, Wash.
Wheelock, Inc., E. W., Los Angeles, Calif.
Whissel Lumber Co., Inc., L. N., Buffalo, N. Y.
Whitmer-Jackson Co., The, Cleveland, Ohio.
Whittier Lumber & Millwork Co., Newark, N. J.
Wholesale Building Supply, Inc., Oakland, Calif.
Wholesale Distributing Co., Pittsburgh, Pa.
Wight & Wight, Kansas City, Mo.
Wiles-Chipman Lumber Co., St. Louis, Mo.
Willatsen, Andrew, Seattle, Wash.
Williams & Hunting Co., Cedar Rapids, Iowa.

Williams Veneer Co., Inc., O. L., Sumter, S. C. (In Principle.)
Willingham-Tift Lumber Co., Atlanta, Ga.
Winde, McCormick & Chapin, Inc., Charlestown, Mass.
Wischmeyer, William F., St. Louis, Mo.
Wisconsin's Transfer Yard, Oshkosh, Wis.
Wood Lumber Co., E. K., Los Angeles, Calif.
Wood Lumber Co., Birmingham, Ala.
Woodbridge Lumber Co., Woodbridge, N. J.
Woodson, L. J., San Francisco, Calif.
Wright Lumber Co., Inc., New York, N. Y.
Wright & Wright, Detroit, Mich. (In Principle.)
Young Service Bureau, John F., Davenport, Iowa.

U. S. GOVERNMENT

Agriculture, Department of, Division of Purchase, Sales and Traffic, Washington, D. C.
Agriculture, Department of, Bureau of Agricultural Chemistry and Engineering, Washington, D. C. (In Principle.)
Agriculture, Department of, Farm Security Administration, Portland, Oreg.
Agriculture, Department of, Forest Service, Missoula, Mont.
Federal Housing Administration, Washington, D. C.
Federal Public Housing Authority, Washington, D. C.
Federal Works Agency, Public Buildings Administration, Washington, D. C. (In Principle.)
Federal Works Agency, Work Projects Administration, Wilmington, Del.
Federal Works Agency, Work Projects Administration, Boise, Idaho.
Federal Works Agency, Work Projects Administration Chicago, Ill.
Federal Works Agency, Work Projects Administration, Columbus, Oho.
Federal Works Agency, Work Projects Administration, Mitchell, S. Dak.
Federal Works Agency, Work Projects Administration, San Antonio, Tex.
Justice, Department of, Bureau of Prisons, Construction Division, Washington, D. C.
Navy Department, Mare Island Navy Yard, Vallejo, Calif.
Navy Department, Norfolk Navy Yard, Portsmouth, Va.
Post Office Department, Bureau of Fourth Assistant Postmaster General, Division of Motor Vehicle Service, Washington, D. C.
Tennessee Valley Authority, Knoxville, Tenn.
Treasury Department, Washington, D. C.
Veterans' Administration, Washington, D. C.
War Department, U. S. Corps of Engineers, Oakland, Calif.
War Manpower Commission, National Youth Administration, Washington, D. C., and Helena, Mont.

COMMERCIAL STANDARDS

CS No. ITEM

0–40. Commercial standards and their value to business (third edition).
1–42. Clinical thermometers (third edition).
2–30. Mopsticks.
3–40. Stoddard solvent (third edition).
4–29. Staple porcelain (all-clay) plumbing fixtures.
5–40. Pipe nipples; brass, copper, steel, and wrought iron.
6–31. Wrought-iron pipe nipples (second edition). Superseded by CS5–40.
7–29. Standard weight malleable iron or steel screwed unions.
8–41. Gage blanks (third edition).
9–33. Builders' template hardware (second edition).
10–29. Brass pipe nipples. Superseded by CS5–40.
11–41. Moisture regains of cotton yarns (second edition).
12–40. Fuel oils (fifth edition).
13–42. Dress patterns (third edition).
14–39. Boys' button-on waists, shirts, junior and polo shirts (made from woven fabrics) (second edition).
15–29. Men's pajamas.
16–29. Wall paper.
17–42. Diamond core drill fittings (third edition).
18–29. Hickory golf shafts.
19–32. Foundry patterns of wood (second edition).
20–42. Staple vitreous china plumbing fixtures (third edition).
21–39. Interchangeable ground-glass joints, stopcocks, and stoppers (fourth edition).
22–40. Builders' hardware (nontemplate) (second edition).
23–30. Feldspar.
24–43. Screw threads and tap-drill sizes.
25–30. Special screw threads. Superseded by CS24–43.
26–30. Aromatic red cedar closet lining.
27–36. Mirrors (second edition).
28–32. Cotton fabric tents, tarpaulins, and covers.
29–31. Staple seats for water-closet bowls.
30–31. Colors for sanitary ware.
31–38. Wood shingles (fourth edition).
32–31. Cotton cloth for rubber and pyroxylin coating.
33–32. Knit underwear (exclusive of rayon).
34–31. Bag, case, and strap leather.
35–42. Plywood (hardwood and eastern red cedar) (second edition).
36–33. Fourdrinier wire cloth (second edition).
37–31. Steel bone plates and screws.
38–32. Hospital rubber sheeting.
39–37. Wool and part wool blankets (second edition). (Withdrawn as commercial standard, July 14, 1941).
40–32. Surgeons' rubber gloves.
41–32. Surgeons' latex gloves.
42–35. Fiber insulating board (second edition).
43–32. Grading of sulphonated oils.
44–32. Apple wraps.
45–42. Douglas fir plywood (fifth edition).
46–40. Hosiery lengths and sizes (third edition).
47–34. Marking of gold-filled and rolled-gold-plate articles other than watchcases.
48–40. Domestic burners for Pennsylvania anthracite (underfeed type) (second edition).
49–34. Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
50–34. Binders board for bookbinding and other purposes.

CS No.	ITEM
51–35.	Marking articles made of silver in combination with gold.
52–35.	Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
53–35.	Colors and finishes for cast stone.
54–35.	Mattresses for hospitals.
55–35.	Mattresses for institutions.
56–41.	Oak flooring (second edition).
57–40.	Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings (second edition).
58–36.	Woven elastic fabrics for use in overalls (overall elastic webbing).
59–41.	Woven textile fabrics—testing and reporting (third edition).
60–36.	Hardwood dimension lumber.
61–37.	Wood-slat venetian blinds.
62–38.	Colors for kitchen accessories.
63–38.	Colors for bathroom accessories.
64–37.	Walnut veneers.
65–43.	Methods of analysis and of reporting fiber composition of textile products (second edition).
66–38.	Marking of articles made wholly or in part of platinum.
67–38.	Marking articles made of karat gold.
68–38.	Liquid hypochlorite disinfectant, deodorant, and germicide.
69–38.	Pine oil disinfectant.
70–41.	Phenolic disinfectant (emulsifying type) (second edition) (published with CS71–41).
71–41.	Phenolic disinfectant (soluble type) (second edition) (published with CS70–41).
72–38.	Household insecticide (liquid spray type).
73–38.	Old growth Douglas fir standard stock doors.
74–39.	Solid hardwood wall paneling.
75–42.	Automatic mechanical draft oil burners designed for domestic installations (second edition).
76–39.	Hardwood interior trim and molding.
77–40.	Sanitary cast-iron enameled ware.
78–40.	Ground-and-polished lenses for sun glasses (second edition) (published with CS79–40).
79–40.	Blown, drawn, and dropped lenses for sun glasses (second edition) (published with CS78–40).
80–41.	Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
81–41.	Adverse-weather lamps for vehicles (after market).
82–41.	Inner-controlled spotlamps for vehicles (after market).
83–41.	Clearance, marker, and identification lamps for vehicles (after market).
84–41.	Electric tail lamps for vehicles (after market).
85–41.	Electric license-plate lamps for vehicles (after market).
86–41.	Electric stop lamps for vehicles (after market).
87–41.	Red electric warning lanterns.
88–41.	Liquid-burning flares.
89–40.	Hardwood stair treads and risers.
90– .	(Reserved for power shovels and cranes).
91–41.	Factory-fitted Douglas fir entrance doors.
92–41.	Cedar, cypress, and redwood tank stock lumber.
93–41.	Portable electric drills (exclusive of high frequency).
94–41.	Calking lead.
95–41.	Lead pipe.
96–41.	Lead traps and bends.
97–42.	Electric supplementary driving and passing lamps for vehicles (after market).
98–42.	Artists' oil paints.
99–42.	Gas floor furnaces—gravity circulating type.
100–42.	Multiple-coated, porcelain-enameled steel utensils.
101–43.	Flue-connected oil-burning space heaters equipped with vaporizing pot-type burners.
102– .	(Reserved for Diesel and fuel-oil engines).
103–42.	Cotton and rayon velour (jacquard and plain).
(E)104–43.	Warm-air furnaces equipped with vaporizing pot-type oil burners.
105–43.	Mineral wool; loose, granulated, or felted form, in low-temperature installations.

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington, D. C.

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